

# **Mulching**

## **Definition**

Mulching is the process of placing a uniform layer of straw, wood fiber, wood chips or other acceptable materials over a seeded area to allow immediate protection of the seed bed. Mulch offers a moist, shaded growing zone which reduces plant burn-off. The proper and timely application of mulch can save entire seeded areas and minimize the amount of raw soil exposed to the elements. This BMP includes the use of erosion control blankets.

Mulch is also used for temporary stabilization of exposed soils which have not been seeded.

## **Pollutants Controlled and Impacts**

Mulching done as a part of vegetative establishment will help keep soil particles and their associated attached chemicals (including phosphorus and pesticides) from entering surface waters. Mulch will also help suppress weed growth, provide a moist area for vegetative growth, reduce evaporation, and prevent crusting and sealing of the soil surface.

## **Application**

### **Land Use**

This BMP applies to any and all areas made bare of vegetation, either by human-induced or natural forces.

### **Soil/Topography/Climate**

Although this practice should be used on all seeded areas, it is especially important on sloping or hilly terrain, and on wind-erodible soils.

### **When to Apply**

Mulch should be applied immediately after each small segment of the area is seeded. Mulch may also be placed as temporary erosion control on exposed areas, and is especially important on exposed areas adjacent to streams and wetlands. Anchoring of the mulch should be done immediately after the mulch is applied.

### **Where to Apply**

Mulch is necessary:

- on new seedings used to stabilize raw areas, especially slopes, droughty sands, and clayey soils
- on unseeded raw areas which need temporary protection from wind or rain
- on any other areas subject to erosion

## **Relationship With Other BMPs**

To ensure an area has a strong vegetative cover, mulching should be done in conjunction with proper Seeding, Soil Management, Fertilizer Management and Grading Practices.

Concentrated flows should be directed away from mulched areas following specifications in the Diversions BMP.

## **Specifications**

**Mulch should be applied immediately after seeding has occurred.**

### **Planning Considerations:**

1. All seeded areas (see Seeding BMP) should be mulched using one of the mulching techniques below. Hydroseeding is discussed in the Seeding BMP.
2. Organic mulches are more effective and less likely to impact the environment than manufactured mulches, and are therefore recommended for most uses.
3. Choose from the following types of mulch. Application rates are given for each type of mulch.

**Straw.** Straw is the most commonly used type of mulch, is readily available in most areas, and is effective when applied properly. Use small grain straw (wheat or oat) that is reasonably free of grain and weed seeds or mold. Straw of winter rye is preferable to spring-seeded grains, since fewer weed seeds generally are present. On critically eroding areas, spread uniformly at the rate of 2.5 to 3 tons per acre (2-3 bales per 1,000 square feet). Under normal applications, use 1.5 to 2 tons per acre. Hay should only be used if straw is not available.

Straw rates for hydroseeding operations should be 2 tons/acre for most applications, and 3 tons/acre for dormant seeding.

**Straw Mulch Blankets.** Straw mulch blankets should be made of a uniform layer of straw and should have a net covering on only one side. The straw and net should be securely stitched together to create a uniform mat. The straw should be clean wheat straw free of weeds and weed seeds. All components, including the stitching, should break down within the first growing season after placement.

**Excelsior Blankets.** Excelsior blankets are made up of coarse wood fibers reinforced by netting. They are most commonly used in drainageways and other critical areas which will be exposed to concentrated flows during storms. The excelsior should consist of evenly distributed wood fibers. The top of the blanket should be covered with netting.

Blankets should be applied with the netting side of the blanket on the top side (i.e. exposed). Lay the downstream or down-slope blankets first, working upstream or up-slope. Follow manufacturer's specifications.

Where more than one width is required, and on ends, provide a minimum 4-inch overlap (or

more based on the manufacturer's recommendations). Blankets should be secured with U-shaped wire staples of a size and length suited to the soil condition. Follow the manufacturer's specifications. Apply fertilizer and seed before the blankets are laid.

**Wood Chips.** Wood chips are suitable for areas which will not be mowed, and around landscaped areas. Wood chips should not be used in areas which are drained by storm sewers, areas subject to flooding, or any other place where they would cause problems if they floated away.

Wood chips do not require anchoring, but need to be applied evenly to be effective as an erosion control measure. Ten or more tons of wood chips per acre should be applied. (The average weight per cubic yard is about 400 pounds. Thus, about 5 cubic yards equals 1 ton.) Several sources recommend applying nitrogen (N) when wood chips are used, in order to have N available for plant growth. If grass doesn't grow without N applications, apply 10-12 lbs. of N per ton of mulch.

**Bark Chips and Shredded Bark.** Bark chips and shredded bark are bi-products of timber processing and are often used in landscaping. They may also serve as mulch for areas planted to grasses which are not mowed, and on slopes which are not steep. Apply with a blower. Bark chips and shredded bark do not require nitrogen applications, and are less likely to leave the site than wood chips (because of their rough edges).

**Compost.** Compost (humus) can be used as mulch. See the Organic Debris Disposal BMP.

Note that the mulching application rates given above can be increased for dormant seeding.

Note also that wood materials should be fairly fine-textured when spread over seed.

4. **Anchoring should be done at the time of or immediately following the application of the mulch.** The appropriate type is dependent upon the type of mulch selected:

**Mulch Blankets.**

Below are some generic types of mulch blankets, (also called nets and mats) which are effective in preventing erosion on both raw and seeded areas. Their specific applications differ depending on the soil type and the slope of the area being protected. See the attached exhibit for additional information on installing and stapling blankets.

- a. **Mulch netting.** This is a light-weight, fibrous material used to secure straw mulch where heavy flow is expected (i.e. in waterways and on steep slopes). Except when wood fiber slurry is used, the netting should be rolled on top of the mulch and secured to the ground with metal pins or wooden stakes. Wood fiber may be sprayed on top of an installed net. In areas which will be regularly mowed, netting may not be recommended. Use bio- or photo-degradable products.
- b. **Mulch with netting in combination.** Several manufacturers make rolls of mulches bound on either side by netting. Because the mulch and netting are in one roll, installation is much easier than applying mulch and then securing a netting in a separate step. These must be anchored with staples or wooden pegs.

- c. **Mulch, netting and seed in combination.** Some manufacturers also make rolls of mulch bound on either side by netting, with seed mixed in. This would allow the user to merely prepare the seedbed and install the blanket. These must also be anchored with staples or wooden pegs.

All mulch nettings should be made of a polypropylene mesh that will gradually decompose with exposure to sunlight.

**Recycled Newsprint.** Recycled newspapers should consist of a minimum 96% shredded high-grade newsprint fibers with a maximum 8% moisture content. The recycled newsprint should consist of a wetting agent, defoaming agent, and non-toxic dyestuff that will impart a bright green color. The dyestuff should adhere tightly to the fiber to minimize leaching of the dye after application. The mulch should contain a minimum 0.8 percent by weight of guar gum tackifier. This material should come packaged in a waterproof material so it may be stored outside.

Application: Apply recycled newsprint mulch at a rate of 750 lbs/acre, placed over the straw mulch.

**Mulch Crimper.** This consists of a series of flat, notched discs that punch the mulch into the soil. Crimping is usually done on straw. When pulled over the mulch, the crimper punches some of the mulch into the soil.

Application: To use the crimper, the soil must be moist, free of stones, and loose enough to permit disc penetration to a depth of 3 inches. When using a crimper, seed and mulch by working across the slope. This method is limited to slopes where equipment can operate safely.

**Emulsified Asphalt.** This is a liquid chemical that has been used as a mulch binder. We do not recommend its use because: of the potential for the chemical to drift; it forms a fairly impenetrable layer; and it is sticky and therefore a potential nuisance to children.

#### **Implementation:**

1. Follow seedbed preparation in the Seeding BMP. Add any needed lime or fertilizer based on the results of soil tests. (See the Soil Management BMP).
2. Apply the seed before mulching except when the seed is applied as part of a hydroseeder slurry containing wood fiber mulch, or when a mulch blanket is used which already contains seed.
3. Apply the mulch uniformly according to the rates determined above. In hydroseeding operations, a green dye added to the slurry assures a uniform application.
4. Secure the mulch using the anchoring method selected above.

### **Maintenance**

Mulched areas should be checked following each rain to ensure the mulch is staying in place. Additional tacking materials or netting may need to be applied to hold the mulch in place.

Maintenance procedures should also be followed for the BMPs which were implemented to keep eroded soil or concentrated runoff away from the mulched area. Follow maintenance procedures in the appropriate BMPs.

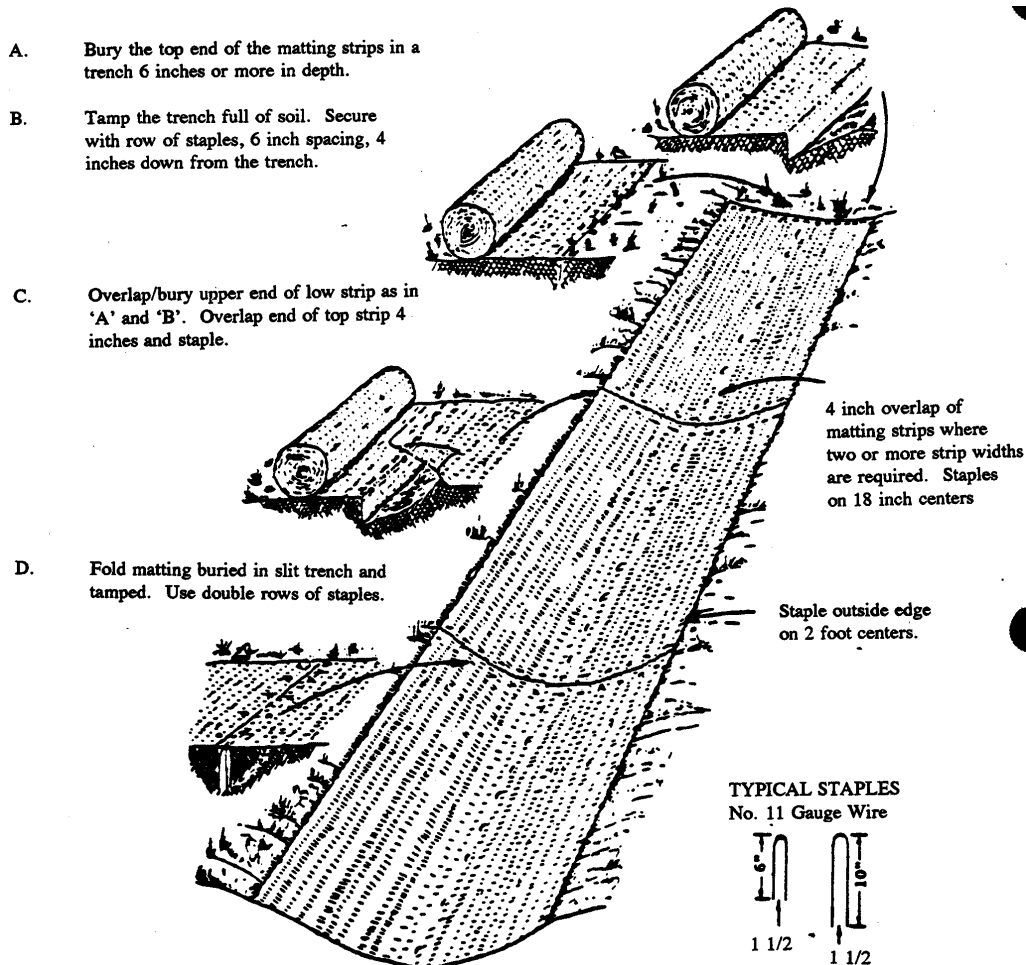
### **Exhibits**

Exhibit 1:       Installation of Netting and Matting for Erosion Control. Modified from the 1983 Maryland Standards and Specifications for Soil Erosion and Sediment Control.

## Exhibit 1

### Installation of Netting and Matting for Erosion Control

Below are general principles for installing netting and matting. Always follow the manufacturer's recommendations.



1. Bury top ends of matting in a trench. As the blankets are unrolled down slope, the matting must be on top with the wood fibers, seed, etc. in contact with soil. Butt snugly at the ends and side before stapling.
2. Staple, following manufacturer's recommendations.
3. Make sure matting is uniformly in contact with the soil.
4. Make sure all lap joints are secure.
5. Make sure all staples are flush with the ground.

Source: Modified from 1983 Maryland Standards and Specifications for Soil Erosion and Sediment Control.